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FOOD DRYING PROGRESS AND IMPORTANCE

How the People of America Can and Should Help in Developing the Use of Dried Vegetables

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THE NATIONAL WAR GARDEN COMMISSION

Washington, D. C.



AMERICA MUST FEED THE WORLD
FOOD DRYING IS AN ESSENTIAL

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FOOD DRYING PROGRESS AND IMPORTANCE

WAR against famine has now taken the place of war against Germany. Peace has brought new problems in feeding mankind. For solving these problems war-stricken Europe rightly looks to America. That she may furnish the solution, America must apply every possible measure to make her food supply stand the increased strain. In this grave situation, the use of dried vegetables assumes new importance in the economic system of the nation.

Science Has Helped

Vegetable drying has made noteworthy progress since the outbreak of the European war. Scientific research and the practical application of its results have given greatly increased impetus to this means of preparing the surplus products of summer for use during the months of non-production. Vegetable drying may now be regarded as winter food preparedness in its simplest form. Because of its simplicity, it is especially important to the average household. In the congested cities this importance is emphasized by the small space required for storing dried products. People must learn to value them at their full worth and use them accordingly. Proper utilization of our food supply demands this.

The use of dried products is worth while from many points of view. Whether considered as food conservation or from the standpoint of convenience to the housekeeper the utilization of dried vegetables and fruits in the daily diet is to be commended. Notable among the advantages are the following:

1. *Food Conservation.*—Drying makes possible the saving of large quantities of food which would otherwise be wasted. One form of this preventable waste is that which comes from lack of market demand at the time of harvesting. Another form is that with home dried vegetables and fruits no expense is involved for glass or tin containers such as are required for canning.

2. *Storage Advantages.*—Dried products may be kept in places that could not be used for canned products because of excessive warmth or danger of freezing.

3. *Climatic Conditions.*—In many communities in the extreme north or the extreme south climatic conditions are such that canned products cannot be safely transported or handled by grocers. In those and all other sections dried goods may be easily handled.

4. *Convenience and Economy in Transportation.*—The reduced volume and weight of dried products is such as to involve a minimum of space and transportation charges. This also makes for convenience in storage. Dried products represent much in little.

5. *Palatability and Nourishment.*—These are, by no means, the least of the advantages. Properly dried vegetables or fruits, properly prepared, have palatability and nourishment equal to fresh products.

With the cessation of hostilities in Europe came the liberation of vast

numbers of people who had been reduced to starvation through German subjugation. In France and in Belgium vast areas of reclaimed territory are peopled with repatriated millions who had not only to be removed from present starvation, but provided with such surplus as would enable them to return to health and prosperity. Food Administrator Hoover declares that the war was brought to an end in no small measure by starvation itself and that it cannot be our business to maintain starvation in times of peace. Not only must France and Belgium be fed, but we must look to it that famine conditions in Russia are relieved to the fullest possible extent. In Northern Russia alone 40,000,000 people face dire hunger. In Armenia, Syria, Turkey and Rumania the conditions are extremely grave and America cannot relax its efforts to ovecome the food shortage of the world resulting from the war.



ANSWER THE CALL FOR FOOD CONSERVATION

Vegetable drying can be made a mighty factor in solving the food problems thus thrust upon us as the world's most favored nation. The necessities of war time brought about the development which advanced vegetable drying to a point where it can take its proper place among the economic forces of the day.

Shrinkage In Drying

Food, when dried, shrinks both in bulk and in weight. The reduction in weight of dried vegetables and fruits ranges from five-sixths to eleven-twelfths with an even greater reduction in some cases. A California operator furnishes these figures: Potatoes shrink in weight about 6 to 1; cabbage, about 20 to 1; tomatoes, about 20 to 1; spinach, about 18 to 1; turnips, 14 to 1; carrots, about 9 to 1. Less than three pounds of dried tomatoes, for instance, are the equivalent of 60 pounds of canned tomatoes. Not only are the products much shrunken, when taken from the drier, but they may be still more compressed in packing, so that the bulk is still further lessened.

In the case of commercially dried products this reduction in weight also lessens transportation costs and therefore lessens the tax on the consumer. A shipping incident serves to illustrate. Fifty pounds of green Brussels sprouts were shipped by express from California to an Eastern point at twelve cents a pound. To this cost of six dollars was added the cost of shipping with the Brussels sprouts one hundred pounds of ice at twelve

cents a pound, which made a total transportation charge of $18. The equivalent of these fifty pounds, namely, three pounds of dried products, which required no ice, might have been shipped to the same point by parcel post for 35 or 36 cents.

The experience of the armed forces in the zone of conflict is instructive.

Used by Armies

Because of the ease of transportation and other advantages, dried vegetables have been given an important place in the diet of the soldiers of Great Britain and other countries. Where fresh products are used army officials estimate that two men are needed to prepare potatoes and other vegetables for every one hundred soldiers. Dried vegetables



DRIED VEGETABLES WILL HELP FEED YOUR BROOD

are already prepared and are ready to cook after being merely soaked in water. In an army of 2,000,000, their use would release nearly 40,000 men for other tasks. As the original preparation is largely done by simple and inexpensive machinery, there is a tremendous saving of man-power. The shrinkage in bulk makes dried products acceptable and fitting naval stores and trans-ocean freight.

The absence of moisture is unfavorable to the growth of micro-organisms and this is the secret of the preservation of food by drying. After the Boer war, considerable surplus dried vegetable material, no longer needed for the English army, was put in barrels and stored away. The barrels were opened during the European war and the contents satisfactorily used for army rations. Products which kept unchanged in quality and flavor for eighteen years might reasonably be supposed to keep well for all ordinary purposes.

Germany's stores of dried vegetables greatly helped her in carrying on the war.

A Lesson From Germany

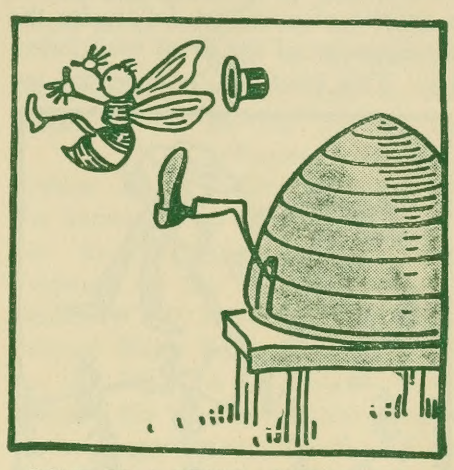
During the last year of which the United States Government has any official record, Germany dried in potatoes alone more than twice the entire quantity of potatoes raised in this country. She has more than quadrupled the number of her plants since starting the war, and has now more than two thousand. There are in Germany fifty-six firms supplying complete drying apparatus, and thirty-seven other firms which supply auxiliary machines and parts.

Despite all these truths, one finds practically no dried vegetables for sale at retail in America, and only a

limited amount of fruit. Outside of government contracts there is little or no market for dried vegetables. The National War Garden Commission has inquired carefully into the matter, having corresponded with most of the commercial drying concerns in the country. One and all report that aside from contracts with the War Department they have practically no markets for their products. "Creating a market is the only difficult thing about the dehydrating process," is a typical statement. "Everything else is very simple. To educate people to eat dehydrated products is an enormous task. If everybody would use the product it would be one of the cheapest and easiest ways of conserving our perishable crops, but with the limited consumption of the present time, dehydration cannot be really considered of any large importance in the conservation movement. Our markets are growing and we are opening up new ones all the time, but it will be several years yet before we can claim that dehydrated products are in universal use."

Market Must be Created

It is highly desirable that a market for dried foods be created, and speedily. In view of the world food situation we must practice conservation in its highest sense; we must produce more food than ever before and make wise use of every ounce produced. To achieve true wisdom of use we must conserve as much as possible in the form which best meets the needs of the situation. For use in our homes canned foods are desirable, but if we are to reap the full benefit of our Victory Garden crops, these must be supplemented by dried foods. For shipment abroad dried foods are particularly needed. Europe needs steel and wood and cement and a thousand other kinds of material for the rebuilding of those vast ruins which were prosperous cities and villages. Europe also needs cattle, millions of cattle, to make good the present shortages, and needs cattle-feed by the trainload as well. Ships will be needed to carry our own soldiers back home. The demands on shipping space will be almost beyond conception. Whatever saves space is, therefore, a prime requisite in the upbuilding of a ruined world. Since food is the first of all requirements, we should by all means adopt and develop that method of food shipment which calls for least space. This means that we



DON'T BE A DRONE. PREPARE FOR WINTER

should greatly increase the use of dried foods.

The Government has appropriated a quarter of a million dollars for the development of the dried food industry. This fund will be expended un-



VEGETABLE DRYING HELPS MAKE A GARDEN GROW DOLLARS

der the auspices of the Department of Agriculture, and in its handling the Government will have the benefit of the skill and ability of Lou D. Sweet, who has been at the head of the Dehydration Section of the United States Food Administration. Mr. Sweet is a strong advocate of the need for creating a market for dried vegetables and fruits. In a letter to the National War Garden Commission, Mr. Sweet emphasizes the importance of food drying and urges its development on a commercial scale. He writes:

As yet, however, the commercial development of the industry has not reached a scale that will meet the nation's needs for this form of conservation.

Before this can be done there must be real demand for products prepared by this method.

Commercial dehydration has come to stay in this country and while it may still be regarded as in the experimental stage, those who are most familiar with the problems of food production and conservation are firm in the opinion that we are seeing only the beginning of what is sure to expand into an enormous and most important industry.

The impetus given to the process of canning by the Civil War bids fair to be outrivalled by the impetus given to this simpler and more universally applicable method of food conservation and there seems to be no reason why the abundance of one season or one locality should not be made available by this means for periods of scarcity or for regions where fresh fruits and vegetables can not be obtained.

Every encouragement, therefore, should be given to home drying, in order that the people may become familiar with the excellence of the products which may be prepared by this method; and to save the vast quantities of excellent food which now go to waste for lack of adequate methods of conservation. Conservation on a really important scale will, however, be only reached by commercial dehydration which secures superior and more uniform products at a much lower price.

Further Expert Testimony

The expert testimony in favor of food drying is further summed up in a statement by David Fairchild, agricultural explorer in charge of the office of Foreign Plant Introduction, United States Department of Agriculture. He says:

I believe the American public should learn to use dried vegetables, because in so doing great economies can be brought about in this country as they have been in Germany and Austria. The dehydrated vegetable saves transportation of both bulky fresh vegetables and bulky canned vegetables, not only those portions which are actually consumed but the waste which forms so large a part of the garbage of our cities. The dehydrated vegetable saves tin, since it can be put up in paper containers. It saves labor in the small home where the convenience of its use is apparent. It saves in wastage at the point of production and at the home. We little appreciate how gigantic the wastage of

fresh vegetables is, and this wastage is largely because the vegetables are too cheap on the market in the height of the season to warrant a grower to ship them to it, and it is here that dehydration should play an important part.

There is nothing in the vegetable situation which confronts us today to assure us of cheaper vegetables in the future. We must not forget the small proportion of women gardeners in this country as compared with the women field workers of France and Germany and even England, and vegetables require a large amount of hand labor to produce. Where is the labor coming from?

Possessing as we do such remarkable food as Indian corn, and having learned, as we have, to like it, there would seem to be a danger that we depend too fully upon it and, with the increasing price of vegetables, fail to realize that as we increase our corn consumption we require greater quantities of milk, butter, meat, fats or vegetables to supply the food essentials lacking in corn. As the fresh vegetables become scarcer on the markets, it would become more and more difficult to do this, and the result predicted by dietitians is malnutrition among those who think they cannot afford to buy the vegetables. We should learn to use these dried vegetables to supplement the grain ration.

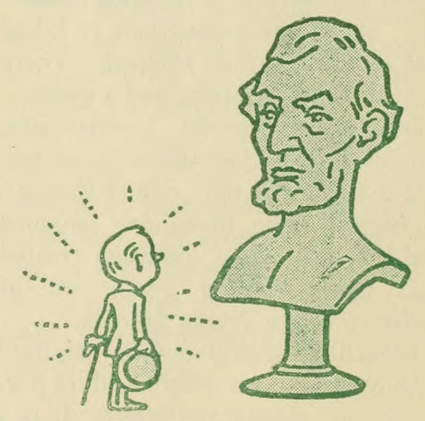
It is easy to see a hundred reasons why we should not eat dried vegetables, but it is unscientific and unpatriotic to shut our eyes to their possibilities. As a people we should move ahead into the field of dehydrated vegetables, develop it, discard what is not good, hold what is good, and make it a means to stabilize those vegetables the price of which fluctuates now in a most unsatisfactory and dangerous way.

While I believe that we should consider first our own attitude toward dehydrated vegetables and work out the best methods of using them for ourselves, we are warranted in believing, as conditions are at present in Europe, that there will be need of large quantities of all kinds of foods, including these dried vegetables, in those countries which are now famine-stricken. Although it is undoubtedly true that the German troops are using enormous quantities of dried vegetables, it is not demonstrated to what extent they will be employed in the feeding of our own boys. No civilian will take the attitude that the boys should be fed on food which he himself refuses to eat. If we learn to use them extensively, it is a practical certainty that our own armies will employ them extensively, as have the armies of Great Britain, France and Germany.

Government Help

The appropriation of $250,000 recently made available for the Department of Agriculture, will be used in conducting further experiments with dehydration of vegetables and carrying the knowledge to the American people. As a committee to carry out the purposes of the appropriation, the Secretary of Agriculture has appointed Major S. C. Prescott, U. S. A., and Mr. Lou D. Sweet. Major Prescott has been in the food division of the surgeon-general's office of the United States Army and is professor of micro-biology at the Massachusetts Institute of Technology.

Drying is economical and simple.



VEGETABLE DRYING IS PATRIOTIC

It requires no elaborate nor costly apparatus. The finished product does not require expensive containers, as almost any sort of a receptacle which is clean can be utilized. Compactness is another advantage. This applies

both to shipping and to storing. The excellence of the original quality and flavor is retained and when properly dehydrated food is restored by proper soaking, and then cooked, it cannot be distinguished from fresh vegetables and fruits after they have been cooked.

"Why not cook vegetables before drying them?" was a question of plausible suggestion. Complete cooking, par-boiling, and even shorter methods of cooking, were tried upon a variety of vegetables, until a minimum period of boiling water treatment favorable both to wholesomeness and to good taste in the dried product was adjudged suitable. This treatment, which varies in time for different products, has been accepted as an essential part of the proper drying of vegetables. It is called blanching. By it the protoplasm is killed and enzymic action stopped. There is a thorough cleansing and a destruction of many bacteria. Furthermore, the flow of coloring matter is started, and the color of the product thus accentuated. The fibers are loosened and softened and a condition created that facilitates the giving off of moisture in the drying process.

Blanching should not be confused with cooking, as it differs both in purpose and effect. It is a preparatory process by which the wholesomeness and flavor of a sound product are retained through the stopping of chemical changes. The drying process should follow at once, and be done as rapidly as possible, with due attention to proper temperatures, which range from 115° to 175° F. for different products.

Blanching is Useful

Too much heat is dangerous. It is dry air that is needed, rather than air greatly heated. The heat is incidental to the drying of the air.

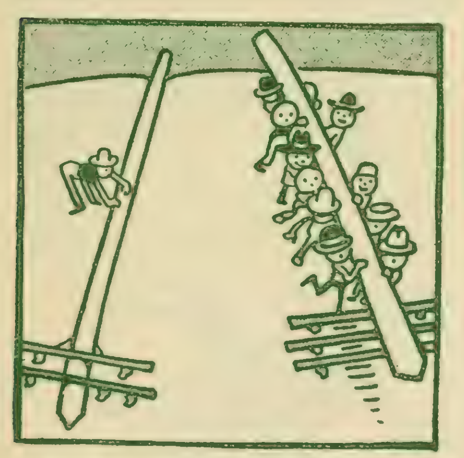


AN INVITING DISH OF DRIED CARROTS

If products are not dried sufficiently the moisture retained makes a medium for the development of bacteria and mold and spoilage occurs. How much water to extract then becomes an important consideration. The abundant sugar present in most fruits acts as a preservative and therefore it is not necessary that they be as dry as vegetables. A rational method of determining the right degree of drying for the finished stage is by the texture of the products. Most vegetables should be rather brittle when taken from the drier, and fruits should be leathery and pliable. One method of determining whether fruit is dry enough is to squeeze a handful, and if the fruit separates when the hand is opened it is dry enough. Another way is to squeeze a single piece; if no moisture comes to the surface the piece is sufficiently dry. Berries are dry enough if they stick to the hand but they do not crush when they are pressed.

NEIGHBORHOOD AND COMMUNITY DRYING

HOME drying is profitable both to the household and to the nation, but if a neighborhood or community pools its expenditures for equipment and works as a unit a larger amount of material may be dried with greater convenience and a considerable saving of labor, time and fuel. A bigger drier than could be put into a home kitchen may be set up in a schoolhouse, parish house, clubhouse or other accessible place for common use in drying; and definite hours of duty may be assigned to different persons. Such, in general, is the plan of neighborhood or community drying. Details as to how much material each person may bring at one time, when such material shall be brought, and who shall be on duty to regulate the drier, should be carefully worked out.



COMBINED EFFORT SIMPLIFIES MANY PROBLEMS

Each woman should prepare her own products and always leave utensils in good order. When people are novices at drying it is advisable to hire a paid expert for a short time, or if the arrangement for a common drier is to cover the community, the continuous service of at least one salaried person is desirable. Some one is required also to do regular cleaning in the room used. This may take an hour a day once or twice a week, or all day every day according to the needs. Community drying is simply organized drying, not for commercial profit, but for mutual aid and facility in the conservation of vegetables and fruits for home use.

The country is calling upon the women of America to do their utmost to preserve for winter use all garden, orchard and market surplus. In millions of homes prompt action has been taken for home drying, but there remains an enormous surplus still uncared for. The solution of the problem is the community drier. On a rising scale as to the size of operations, mutual drying may be divided into three classes:

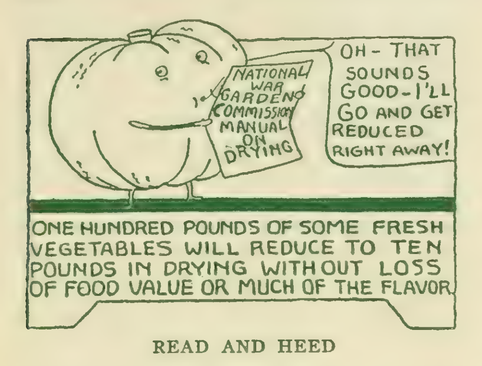
1. Two or more families working together with equipment bought or made for the use of all.

2. Neighborhoods organized through a Women's Club, church or some existing neighborhood organization.

3. Communities, organized through the local Council of Defense, the Mayor's Committee, the Chamber of Commerce or the Women's Club.

Through neighborhood work any number of families from two to fifty may work along the lines of mutual drying operations. One set of apparatus will serve for all. The cost, thus divided, will be small for each household. The results will be

Neighborhood Drying



READ AND HEED

of vast value, as each family will thus be prepared to feed itself next winter and he who feeds himself feeds the nation.

A neighborhood club is easily formed. It consists of a number of women, united by organization, for the purpose of engaging in drying, and using a common standard. In the simplest sense this need not be an organization at all. All that is necessary is for two or more households to agree on working together in the purchase and use of equipment. A drier for the use of several families may be bought for $25 to $30, or it may be made at home as shown in "Home Canning and Drying Manual" issued by the National War Garden Commission.

Starting Community Work

How can work best be started? If three to six or eight families are to benefit, it will be necessary to secure a room with running water in or near it. A space is necessary for conditioning, and, provided it is not damp, the same room or one nearby may be chosen. Space and facility for blanching vegetables is essential and chimney, gas or electric connection is also needed. Such a place can likely be found in the home of one of the members.

A stove to supply heat to the evaporator is needed and very likely would not have to be bought. For drying by electric fan, a device can be readily made and is practical where rates for electricity are low. A motor fan running on kerosene or alcohol is also on the market. Drying by air-blast or air suction without heat is satisfactory in dry climates, but heated air combined with the fan makes the dry-

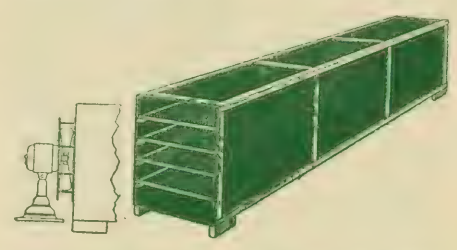


HEED THE MESSAGE AND HAVE WINTER PIES

ing more rapid. Where there is much humidity, the addition of heat is essential.

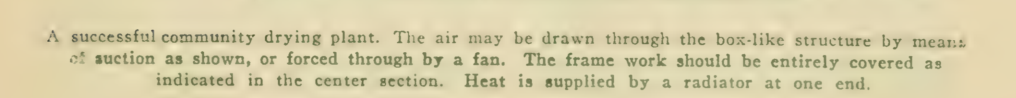
A slicer for vegetables costs $1.50 or more, according to size. Tables and other utensils may be collected from the various households. White oil-cloth for tables, cheese-cloth for protecting the material from dust and insects, and paste-board cartons for containers of dried products would make necessary slight extra purchases. Butter containers are useful for holding dried products, as are also baking powder cans and other covered tins.

If an entire community is to be organized, it will be necessary to ascertain how many families will use the community plant and approximately how much material will be dried daily. These things determined, a drier can be chosen intelligently. Because of its usual hot-air blast, which dries products quicker than they can be dried by the evaporating process, a dehydrator is often preferable. The cost of a satisfactory dehydrator may be put at $1,000 to $2,500. A home-made outfit may be constructed at considerable less cost. Carpenters and men installing heating apparatus will usually be glad to furnish estimates of cost, if supplied with a description of the apparatus desired. Care must be taken to provide for accurate regulation of temperatures. Otherwise results will be unsatisfactory.



SIMPLE HOME-MADE DRIER FOR ELECTRIC FAN

Mr. C. W. Pugsley devised a successful community plant, which was first used at Lincoln, Nebraska. In dry climates his method is dehydration without heat. In more moist climates heated air should be used. A means of supplying heat by use of a radiator is shown in the illustration. The cost of an outfit like this would be $250 or more according to



A successful community drying plant. The air may be drawn through the box-like structure by means of suction as shown, or forced through by a fan. The frame work should be entirely covered as indicated in the center section. Heat is supplied by a radiator at one end.

the price of materials and labor in the locality. A number of these plants have been in successful operation.

A Successful Plant

Instead of air being forced over the products, suction is used on the theory that the drying is quickened by this method. The reverse may be used if desired and the air forced through by an electric or other power fan.

Illustrations, descriptions and prices of several standard ready-made evaporators and dehydrators should be ob-



DRYING IS A SIMPLE PROCESS

tained. In making an estimate of funds needed, include also service for cleaning, cost of operation of stove, fan or both, and $25 to $30 for necessary equipment such as slicers. It should be clear to all concerned that a major part of the expenditure should represent investment for an indefinite number of seasons, and should not be considered in terms of one season.

The management, with the estimate in hand, may then consider how best to finance the matter. The local Council for Defense, the Committee for Public Safety, The Mayor's Committee, the Chamber of Commerce or a leading women's club is a suitable organization to back a movement for organized food conservation. Such activities should be as far as possible conducted by committees of established central bodies. The unnecessary multiplication of associations is a handicap to a community.

Adequate organization is as necessary as backing. It is essential to have the right executive machinery as well as material facilities.

Organizing a Community

The best person available should be chosen to have charge of the active work. This person should be chosen for ability and fitness and he should have the backing, support and assistance of three capable persons constituting a committee of management. This leader should be placed in charge of the work. It is desirable that he should have technical training, but in any event the enterprise should have the benefit of the services of a technically trained worker. In many communities the United States Department of Agriculture will have demonstrators available who will be helpful in organizing and supervising the work. In others domestic science teachers in public or private schools may be available. The state experiment station, State Agricultural College, or County Agent can doubtless place any community in touch with supervisors.

There should be a checker to keep

account of products, and a book-keeper. For these positions volunteer service is usually obtainable. Women who help to prepare and dry extra



ALL ABOARD FOR THE DRYING CENTER

products sent in as general surplus should be paid by the hour, but payments should be made in products rather than in money. The value of the products should be based upon the market price of fresh products plus the cost of drying, including labor.

Location of Plant

The location is important. It should be central and suitable. School kitchens are usually available, are fitted with various conveniences, and are rarely used otherwise during the summer. Church kitchens are sometimes offered. Empty stores or space in a gas or electric company's quarters are possibilities. The schoolhouse is usually the most economical choice. In fact, parts of the house itself may be converted into dehydrators. When viewed merely locally, it may require less thought and bother simply to buy a dehydrator, but considering the number of communities in the whole country, and the need for drying operations in each one, it is uneconomic to buy. There are not enough dehydrators made to dry all the surplus home products of the country; and an adequate immediate development of their manufacture is practically impossible.

In organizing community drying centers it will usually be found that all the facilities needed already exist, and that the chief requirement is the vision to see and recognize them. Existing organizations, existing buildings, existing apparatus and the ad-



USE THE SCHOOL-HOUSE AS A COMMUNITY DRYING CENTER

vice and assistance of local carpenters, plumbers and other artisans will provide the essentials for a successful community drier in almost any city or town. "Use what you have," is a good motto for those about to organize a community drier.

In a large community it may be desirable to have several district centers.

Community Centers

In that case the central organization will have to be duplicated as many times as there are centers. These organizations should work together. Thus they can buy to advantage, procuring necessary supplies at low rates.

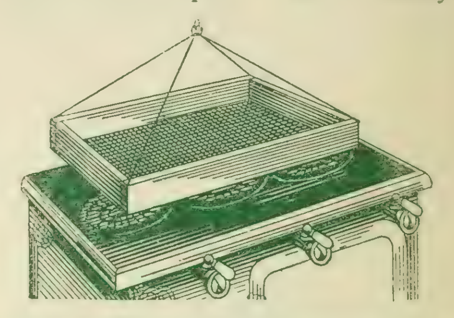
Under some conditions it may be desirable to form a conservation or-



DRIED VEGETABLES ARE EASILY STORED

ganization within an industrial plant. Many industrial plants have provided large gardens for their employees; and these garden areas are usually company lands adjoining the company plants. Often they are distant from the town, or the workers live so far from the plants that they must go to and from their work in trolley-cars or other conveyances. In such cases a good plan for utilizing the garden products is to carry home what can be eaten fresh and dry the remainder at the factory.

Employers progressive enough to assist their employees to procure garden space and raise food, will also be progressive enough to help them conserve their surplus. And obviously



SIMPLE DRYING TRAY TO SUSPEND OVER STOVE

in many cases a good solution of the problem lies in the factory drier. This can be organized and operated very much as any other community enterprise is operated. Drying outfits can be installed, containers procured, and the work done by the employees under skilled supervision. The men can gather the products while the women prepare and dry them. The daylight saving law fits in with such a plan admirably, as the extra hour of light at the end of the working day will afford ample time for such work. Where employers are willing to do so, the working day can be shortened on certain days for those thus engaged.

It is important to remember that community drying plants are intended for the conservation of excess crops rather than to encourage increased production. Their chief function is to save waste.

SUMMARY OF ORGANIZED DRYING

A framework for community organization is afforded by the following outline:

1. Arousing interest.

In community work this may be done through the central body having charge of the community work, with the co-operation of the newspapers and other publicity. In neighborhood work it should be done through personal effort. One or more meetings should be held at a central place, to stimulate and maintain interest and to instruct the workers, through lectures, on the details of their work. In the public library all literature on drying should be withdrawn from circulation and set aside for the use of the workers.

2. Organizing.

To cover an entire community this should be done by the central body in charge. If the community is too large for a single drying center each center should have its organization. A general meeting offers a good chance to arrange this. Members should enroll with the secretary.

3. Providing central place for conducting the work.

In community work a school house, church basement, store or other place having facilities for water and abundance of heat will be need d. In neighborhood work two or more families may work in one kitchen, using the necessary apparatus jointly.

4. Providing instruction and supervision.

In community work the best results may be obtained by having trained workers instruct workers and supervise the work.

5. Conducting demonstrations.

These may be indoors or in the open air. They should be conducted by skilled workers and should be open to all who are interested. In community work they should be held in as many sections of the city or town as necessary. At each demonstration vegetables and fruits should be dried to show the exact methods.

6. Obtaining equipment.

In community work this should be done by the central body having charge. For mutual work by two or more households it should include driers and containers for dried products. Reduced prices may be obtained by buying in large quantities. In community work a committee should get prices on large lots and buy for all or should arrange with dealers to supply to individual members at reduced price.

7. Forming teams.

In some community centers it is found useful to organize teams of six or eight women who do their work together. This saves labor and stimulates competition among teams.

8. Offering prizes.

In some communities, where there are several local centers, interest has been aroused by offering prizes to the center making the greatest progress, based on the number of women eligible for membership, the number enrolled and the results produced.

9. Preparing reports.

Each member should keep a record of the total amount of each product dried. The secretary of each organization should report these totals to the central organization, in order that the results of the entire community may be determined.

10. Storing products.

Arrangements should be made for storage of products belonging to the community plant, and for their subsequent allotment or sale.

HOW TO COOK DRIED PRODUCTS

In order to properly cook dried vegetables, it is important to have regard for the proper cooking of vegetables in the fresh state. The simple rules for cooking fresh vegetables are well known, but it is not out of place to emphasize some of the special points.

The first step in cooking fresh vegetables is to wash them thoroughly in cold water, using a vegetable brush. To pare, use a sharp French vegetable knife. The outer skin and any discolored portions should be removed. The vegetables should be cooked in boiling water.

Cooking Fresh Vegetables



DRIED POTATOES PREPARED BY USE OF MEAT CHOPPER

Salt should be added at the end of ten minutes, using in general, one teaspoonful to one quart of water.

Sweet juiced vegetables, such as peas, beans, potatoes, squash and the like, should be cooked closely covered in a small quantity of water to avoid loss of flavor by evaporation. Strong-juiced vegetables, such as cabbage, onions and turnips, should be cooked in a large quantity of water in an uncovered vessel. If flavor is too strong these vegetables should be cooked in two or more changes of water.

Time for cooking varies with the freshness and type of vegetable, so that a time table for cooking vegetables may serve only for a guide. In general the following time table may be followed for fresh vegetables:

Peas or beans from market	1 to 2 hours
Fresh peas from garden	20 to 30 minutes
Fresh string beans	30 to 40 minutes
Green vegetables, as spinach, cabbage, etc.	15 to 30 minutes
Roots and tubers	30 to 60 minutes

The water in which vegetables are cooked may be saved for use in soups and sauces served with vegetables.

Dried vegetables differ in no essential nutritive way from fresh vegetables, and the same principles govern their proper cooking, though applied in a necessarily modified form. Not all foods are suitable for drying according to present methods but if a proper selection is made and the drying correctly done both flavor and nutritive value should be retained in large measure in the product as finally cooked and ready for serving. Expertly dried vegetables contain about 3% to 10% moisture as against 75% to 90% or even 95% in the fresh vegetables.

Cooking Dried Vegetables

The first step toward preparing them for table use is to put water back

into them by soaking. This soaking draws out some of the nutrients, and the amount of liquid needed, as well as the time allowed, should be as limited as possible. To add two to three cupfuls of water to a cupful of dried vegetable is a good general rule. The minimum amount should be taken at first, and more added as necessary.



A LITTLE HELPER IN EVERY HOME

The water should be kept cold, as standing in a warm place for any considerable time may cause souring of the product. Finely shredded vegetables in many cases may, without previous soaking, have boiling water poured directly over them and be cooked at once, or after standing from one to five minutes, be satisfactorily treated by bringing the water quickly to a boil, and starting the cooking at this point.

The period for soaking varies with the size and quality of the pieces as well as the structure of the vegetable. Structure of vegetables of the same kind is frequently somewhat different. One hour is usually ample time for the soaking of finely cut products; even a shorter time sometimes suffices. Shell beans and peas require six to twelve hours or overnight. When the pieces of vegetable assume a surface appearance similar to fresh products and have become somewhat swollen the conditions suggest readiness for cooking.

As water is a solvent, dried vegetables which have been soaking lose some of their mineral matter and other soluble substances, such as sugar, in the surrounding liquid. Unless they can be made to re-absorb some of the soluble nutrients thus lost, they will be lacking in food value. Dried vegetables should, therefore, be cooked in the same water in which they have been soaked. The vessel should be covered. The latter part of the cooking should be at a lower temperature to allow for the gradual absorption of as much of the liquid as possible.

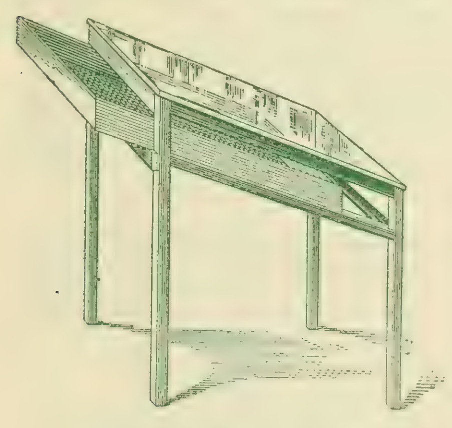


DRYING VEGETABLES KEEPS THE WOLF AWAY

After soaking, dried vegetables, for reasons given in the preceding paragraphs, would naturally be cooked in hot water. The water should be brought to a boil and continued at this temperature until the products are tender.

Cook in Hot Water

Long, slow cooking continued at a temperature 20 to 30 degrees below the boiling point is applicable to vegetables containing considerable vegetable fibre, such as beans. The nutritive properties should be maintained by using as little liquid as possible so that this may be taken up by the foods during the cooking process. Toward the last, if there is much liquid surplus, the cover of the utensil may be removed and the liquid allowed to evaporate. Occasional stirring will permit the moisture to more thoroughly reach all surfaces.



SIMPLE HOME-MADE SUN DRIER

A fireless cooker is satisfactory for cooking dried vegetables. A casserole may be used and oven heat utilized, or the cooking may be done in the usual covered sauce-pan, the temperature toward the end of the process being lowered by turning down the gas or moving the pan to a less hot part of the stove. If all the liquid is not absorbed when the vegetable is "done," it may be used as the foundation of a sauce, made like white sauce, to be poured over the vegetable when served. Care should be taken for judicious seasoning with salt and some vegetable oil or butter.



SLICE AND DRY YOUR VEGETABLES

Dried vegetables may be successfully used in the following dishes:

- Cream of Vegetable Soup
- Purees
- Clear Vegetable Soup
- Vegetable Chowder
- Vegetable Souffle
- Scalloped Dishes
- Creamed Vegetables
- Baked Loaf
- Pie Fillings

RECIPES FOR COOKING DRIED VEGETABLES

Some of the most useful recipes for the use of dried vegetables are given in this and following pages:

Scalloped Corn.

1 cup dried corn.
2 cups water.
Buttered bread crumbs.
Seasonings.

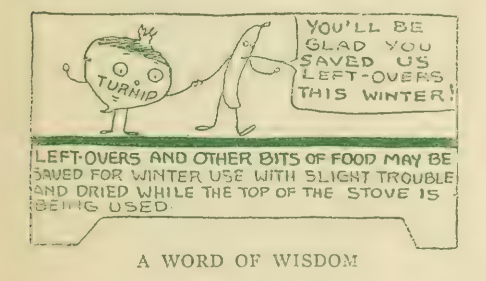
Soak corn, cook slowly until soft, adding more water as needed. Place a layer of corn in greased baking dish, then a layer of crumbs; repeat until dish is filled. Cook in oven until brown.

Vegetable Souffle.

4 tablespoons fat.
4 tablespoons corn or rice flour, or any other flour.
½ cup milk.

1 cup vegetable pulp, such as carrots, turnips, spinach, etc.
½ cup vegetable liquid.
2 or 3 eggs.
Seasonings.

Prepare dried vegetables and put through a sieve. When cooked make a white sauce of fat, flour, milk and the water in which the vegetable was cooked. Add vegetable pulp and beaten egg yolks; fold in the stiffly beaten egg whites. Put in an oiled baking dish and bake in a slow oven until it is set.



A WORD OF WISDOM

Dried Corn Fritters.

3 cups corn.
1 cup flour or substitute.
1 teaspoon baking powder.
1 teaspoon salt.
2 eggs.

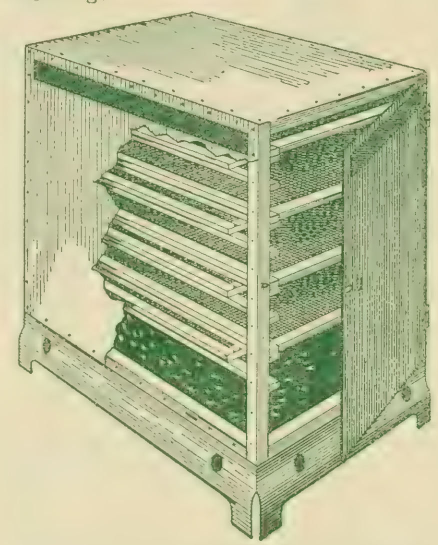
Soak the corn. Cook until tender in boiling salted water.

Drain corn, add dry ingredients; add two eggs slightly beaten; fold in whites of eggs beaten stiff. Fry as griddle cakes.

Cabbage.

1 cup dried cabbage.
4 cups water.
¼ teaspoon soda.

Parboil fifteen minutes, drain, add freshly boiling salted water, cook until tender. Drain if desired, add milk and seasonings.



A HOME-MADE DRIER FOR HOME USE

Carrots.

1 cup dried carrots.
3 cups boiling water.

Wash carrots. Soak four hours in cold water. Heat water in which soaked to boiling, add 1 teaspoon salt, add carrots, and simmer 25 minutes or until tender. Serve simply seasoned or reheat in a white sauce.

Corn Pudding.

2 cups corn.
2 eggs.
1 teaspoon salt.
⅛ teaspoon pepper.
1½ teaspoon melted butter.
2 cups scalded milk.

Soak corn from three to four hours using two cups of water to one of corn. Cook in the water in which it soaked, until soft. Cool. Add slightly beaten eggs to the corn; then add seasonings and scalded milk, turn into a baking dish or casserole; bake in very moderate oven until firm.

Corn Omelette.

Put corn through a food chopper and soak from one to three hours. To three tablespoons of the pulp add the beaten yolks of the three eggs and a little salt; beat the whites to a stiff froth; mix with the corn and pour into a hot buttered pan; cover at once and place where it will cook, but not burn. When set, fold and serve on a hot dish.



LET THE ELECTRIC FAN HELP

Baked Cabbage.

Soak three cups of cabbage from three to four hours, boil ten minutes in slightly salted water uncovered; and add sauce made of one cup milk, one tablespoon of butter and one of flour; season with salt and pepper, put in a baking dish, cover with bread or cracker crumbs, bake one hour.

Squash Pie.

Soak the squash from 3 to 4 hours using 2 parts water to one of squash. Boil slowly in the same water until soft. Mix ¼ cup sugar, ½ teaspoon salt, ¼ teaspoon each cinnamon, ginger and nutmeg, 1 egg slightly beaten, 1½ cups cooked and strained squash and 1 cup milk. Bake in corn meal crust.

Corn Meal Crust.

Grease a pie plate well. Cover with raw corn meal, giving the plate a rotating motion so that an even layer of the meal will stick to the plate. Fill the plate with squash pie mixture.

Scalloped Onions.

Cover with boiling water and cook until tender. Put into greased baking dish, cover with white sauce, season with salt and paprika, and bake in a hot oven until brown.

Omelette With Pea Flour.

2 eggs.
1 cup milk.
3 tablespoons cooked pea flour.

Beat the egg yolks until thick and light. Add the flour and milk and season to taste. Fold in the beaten white lightly. Turn the mixture into buttered pan and place where it will cook slowly. When brown on the bottom and somewhat firm on top, set in the oven to finish cooking on top.

Creamed Potatoes.

Soak the potatoes in milk or water for an hour or so. Cook in a double boiler until soft. If soaked in water add milk. Thicken with flour and season with butter, salt, pepper and a little parsley.

Polenta.

1 quart stale bread.
2 cups tomatoes which have been soaked.
1 cup grated cheese.
½ cup onion which has been soaked.
1 tablespoon dripping or cooking oil.
1 teaspoon salt.
1 tablespoon sugar.

Put drippings in pan, and add onions and cook a few minutes; do not let it brown then; add tomatoes, boil ten minutes, add salt, sugar, boil five minutes, add



GETTING READY FOR THE WINTER BY VEGETABLE DRYING

cheese, stir until smooth, then brush casserole with drippings and put the sliced bread in, pour in tomato and cheese mixture, sprinkle with one tablespoon cheese and bake in hot oven twenty-five to thirty minutes.

Soups.

For each pint of soup there should be one cup of cooked vegetables. Use ¼ or ½ cup, uncooked, of any one of the following vegetables or any suitable combination of two or more, the amount depending on the degree in which each kind increases in bulk. This quantity weighs from 2 to 3 ounces dry and will measure about 1 cup after it has been cooked.

Vegetable Soup.

¼ cup Navy beans.
¼ cup black beans.
¼ cup peas.
2 teaspoons salt.
1½ cups corn.
1½ cups tomato.
¼ cup flour.
Water to make 2 quarts soup.

Mix all the material together and cook the mixture for two hours in a double boiler or from one-half to one hour in a pressure boiler.

COOKING DRIED FRUITS

There are certain broad rules which can be applied to the preparation of all dried fruits:

1. Separate the fruit so that each piece will be single, wash in luke warm water.

2. Pour the water off; put the rinsed fruit into an enameled sauce-pan; cover well with cold water and let stand several hours, keeping the sauce-pan covered.

3. After the fruit has been thoroughly soaked, and regained its natural size, pour off this water saturated with fruit juice into another sauce-pan, and boil from fifteen to twenty minutes. Pour this boiling hot liquid over the fruit. Put the pan on the back of the stove or in the oven, add sugar or honey to taste and let the fruit simmer from fifteen to thirty minutes.

4. Now take the fruit from the stove, keeping the lid on the pan, and let it cool off gradually.

5. The flavor of some fruit is improved by adding a little lemon or orange peel, especially prunes or pears.

6. Fruit cooked in this way can be used for all sorts of purposes, just the same as fresh fruit—for pies, cakes, puddings, soups, candies or simply stewed fruit.

7. As a rule the flavor of fresh fruits is not improved by cooking, but it is somewhat changed and to some tastes more pleasing. A baked apple is the best apple in some estimates. Often, inferior fruits are chosen for cooking, and the lack of satisfaction laid to the fact of cooking. Fruits of first quality, well cooked, make delicious and tempting dishes, but flavor lacking in the uncooked fruits will be lacking in the cooked fruit, and the cooked product will be improved over the raw only by the addition of sugar, spices, or fruit juices to supplement a natural deficiency. Simply cooked fruit plus the minimum of sugar is the better rule, and with attention to temperature, utensils and time, the results should be amply satisfying as to wholesomeness, appearance and flavor.



TO PREVENT AN EMPTY ICE BOX NEXT WINTER, BE A VEGETABLE DRIER

POTATO FLOUR

Potato flour may be substituted for part wheat flour, using ¾ cup of potato flour instead of one cup of wheat flour. It may be used in croquettes, meat balls, meat and vegetable soups, sponge cakes and souffles and as mashed potatoes.

If made at home, a flour mill is necessary. To make potato flour wash tubers well and pare very thinly. If a rotary peeler is used, the potatoes should be graded for size, and those of similar size pared in groups. The eyes will have to be removed by hand. Cut into slices 3-16 to 1-4 inch thick. Blanch in steam one to three minutes, or in boiling water one to three minutes. The water should boil vigorously enough to keep the pieces separated and in motion. Drain and place on drying tray in 1-inch layers, then dry at once. The blanching should be just long enough to prevent darkening while the potatoes are drying. Start drying at a temperature of 125° F. and raise gradually to 145° to 150° F. toward the end of the drying period. When dry enough, the pieces of potato will be free from opaque, spongy white places and will rattle when stirred. Put the dried potatoes through the mill, set to make the flour as fine as possible. The product should be dry and sandy like meal.

Custard Souffle.

¾ tablespoon butter.	Yolk of 1 egg.
⅞ tablespoon potato flour.	1¼ tablespoons sugar.
¼ cup scalded milk.	White of 1 egg.

Melt butter, and add gradually the flour and scalding milk. Cook thoroughly, pour onto the well-beaten yolk, add sugar and cool. Fold into mixture the well beaten white. Turn into buttered custard cups and bake about fifteen minutes—until firm—determine by pressing with finger. Take from oven and serve at once, or it will fall. Serve with foamy sauce.

Salmon Souffle.

2 tablespoons butter substitute.	½ teaspoon salt.
1½ tablespoons potato flour.	½ teaspoon paprika.
¾ cup scalded milk.	½ cup salmon.
	3 egg yolks.
	3 egg whites.

Melt the fat, add the potato flour and seasonings. Cook 2 minutes, then add milk slowly, stirring constantly. When thickened and cooked for a few minutes add the salmon chopped fine. Let cool slightly. Add the well-beaten yolks, when cold fold in the stiffly-beaten whites. Pour into a greased baking dish and bake thirty minutes in a slow oven. Serve immediately.

Vegetable Souffle.

¼ cup butter substitute.	Salt and pepper.
3 tablespoons potato flour.	1 cup cooked vegetables, rubbed through a sieve, carrots, turnips or onions.
1-3 cup milk.	Yolks of 3 eggs.
1-3 cup water in which vegetables were cooked.	Whites of 3 eggs.

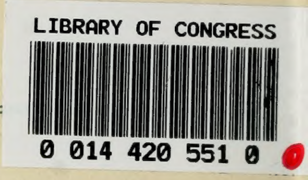
Melt butter, add flour, and pour on gradually cream and water; add vegetable, yolks of eggs beaten until thick and lemon colored, then add seasonings. Fold in the whites of eggs beaten until stiff. Bake in slow oven in buttered baking dish.

THE CARTOONIST'S IDEA OF THE FOOD WAR



Berryman in Washington Star

The Army of Victory Gardeners Forcing General Hunger to Sign Terms. The Vegetable Drying Forces Must Support the Victory Garden Army





After J. N. Darling, in New York Tribune.

NATIONAL WAR GARDEN COMMISSION

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